MEMORANDUM

DATE: August 9, 2004

TO: Environmental Health Managers
District Health Directors
Virginia Tech Contract Soil Scientists
AOSEs/PEs

FROM: John J. Aulbach, II, P.E.
Division of Onsite Sewage and Water Services

SUBJECT: Exemptions to the Practice of Engineering **GMP #125**

Purpose

The purpose of this policy is to define exemptions as they relate to the practice of engineering as it pertains to the design of onsite residential wastewater treatment and dispersal systems.

Introduction

The regulatory and consulting communities need a clear definition of the practice of engineering, thus enabling them to determine who may prepare and submit appropriate designs for onsite systems. This GMP will assure that engineering is not practiced inadvertently by unlicensed individuals by more clearly defining the scope of projects requiring a licensed professional engineer.

Definitions

The *Code of Virginia* defines "The Practice of Engineering" as any service wherein the principles and methods of engineering are applied to, but not limited to, the following areas: consultation, investigation, evaluation, planning and design of public or private utilities, structures, machines, equipment, processes, transportation systems and work systems, including responsible administration of construction contracts. The *Code of Virginia* defines "Professional Engineer" as a person who is qualified to practice engineering by reason of his special knowledge and use of mathematical, physical and engineering sciences and the principles and methods of engineering analysis and design acquired by engineering education and experience, and whose competence has been attested by the Board through licensure as a professional engineer.

"Pre-engineered component" means piping, electrical or mechanical systems using packaged mechanical equipment, such as equipment of catalogued standard design which has been coordinated and tested by the manufacturer party which comply with all applicable codes and certified by a Virginia licensed Professional Engineer, or listed by a third party testing authority for a specific application recognized and approved by the Division. These mechanical systems shall not exceed gauge pressures of 125 psi.

"Informal plans and specifications" means the drawings, specifications, reports, and other documents necessary for the successful construction of a wastewater system and typically submitted for approval by someone other than a professional engineer. If submitted by a Virginia professional engineer they must be bear the appropriate P.E. seals, signatures, and dates.

Discussion

To form the basis for defining our exemptions to the practice of engineering The *Code of Virginia* was reviewed to determine what exemptions are currently in place to the license requirements for architects and professional engineers. These exemptions include:

1. Section 54.1-402.1 - Single and two-family homes, townhomes and multi-family dwellings, excluding electrical and mechanical systems, not exceeding three stories.

2. Section 54.1-401.7 - Plumbing and mechanical systems using packaged mechanical equipment, such as equipment of catalogued standard design which has been coordinated and tested by the manufacturer, which complies with all applicable codes. These mechanical systems shall not exceed gauge pressures of 125 psi.

It appears that the intent of these exemptions can be applied to what have become standard onsite pre-engineered wastewater treatment and dispersal systems and their use at single family structures.

Policy Statement

It shall be the policy of this Division that if the following conditions are adhered to, then the proposed project design will not be considered as encroaching upon the practice of engineering and a design professional, in accordance with the AOSE regulations, other than a licensed professional engineer shall be allowed to prepare and submit a design for approval and issuance of a construction permit.

1. The project must be for single family homes with a design (peak) flow of 1200 gpd in accordance with 12 VAC 5-610.25C of the *Sewage Handling and Disposal Regulations.*

2. Informal plans and specifications must be submitted to include, but not limited to, a scaled site drawing of the residence, other structures, existing utilities, lot boundaries, and dispersal field locations.

3. The raw wastewater characterization must meet that which is normally consistent with residential applications as presented in Table 5.1 of the regulations

4. The project must incorporate pre-engineered package wastewater treatment systems currently approved for use in accordance with the relevant and appropriate regulations, GMPs, and manufacturers design documents. These systems are not allowed to have any job or site specific modifications applied to them. Any modification to the design or function of the treatment system would constitute the practice of engineering.

5. The project must incorporate dispersal field designs in accordance with the regulations and GMPs, and manufacturers design documents. These systems are not allowed to have any job or site specific modifications applied to them. Any modification to the design or function of the dispersal field design would constitute the practice of engineering.

6. The design of pumping systems is allowed for the purpose of transporting the wastewater from a treatment device to the location of the soil based treatment system. This design must be such that the elevation is at a minimum generally level[1] or constantly ascending, the discharge end is open and not pressurized, and does not involve pumping downhill. The design of pumping systems is allowed for site conditions with less than 50 feet static head and 500 feet of force main length. Pumping system designs must be based upon the regulations, and may include enhanced flow, and guidance information available in manufacturer's equipment catalogs. Any modification to the design or function of the pumping system or these design limitations would constitute the practice of engineering.

7. Dispersal systems designed in accordance with the regulations and GMPs utilizing a manufacturers pre-engineered components, and an approved design manual are considered pre-engineered, upon approval by the Division.

8. The designer shall inspect and be responsible for assuring that the selection and installation of all components of the installed system conforms with the approved pre-engineered system.

[1.] Pumping downhill is not allowed under this policy. In some instances a pump is required on a level site where the minimum grade for gravity fall cannot be met. In these instances micro-topography may require short portions of a pressure line to be placed downhill. This policy allows this practice provided the over-all grade is level or slightly uphill.